

Agile Application Landscape Planning in Energy Sector – Architectural Experiences

István Vokony Phd¹, M. B. Szekeres², V. Gy. Németh²

1Budapest University of Technology and Economics
Department of Electric Power Engineering
2Strategy and Architecture Enterprise Architecture Management
E.ON Digital Technology Hungary
Email: vokony.istvan@vet.bme.hu

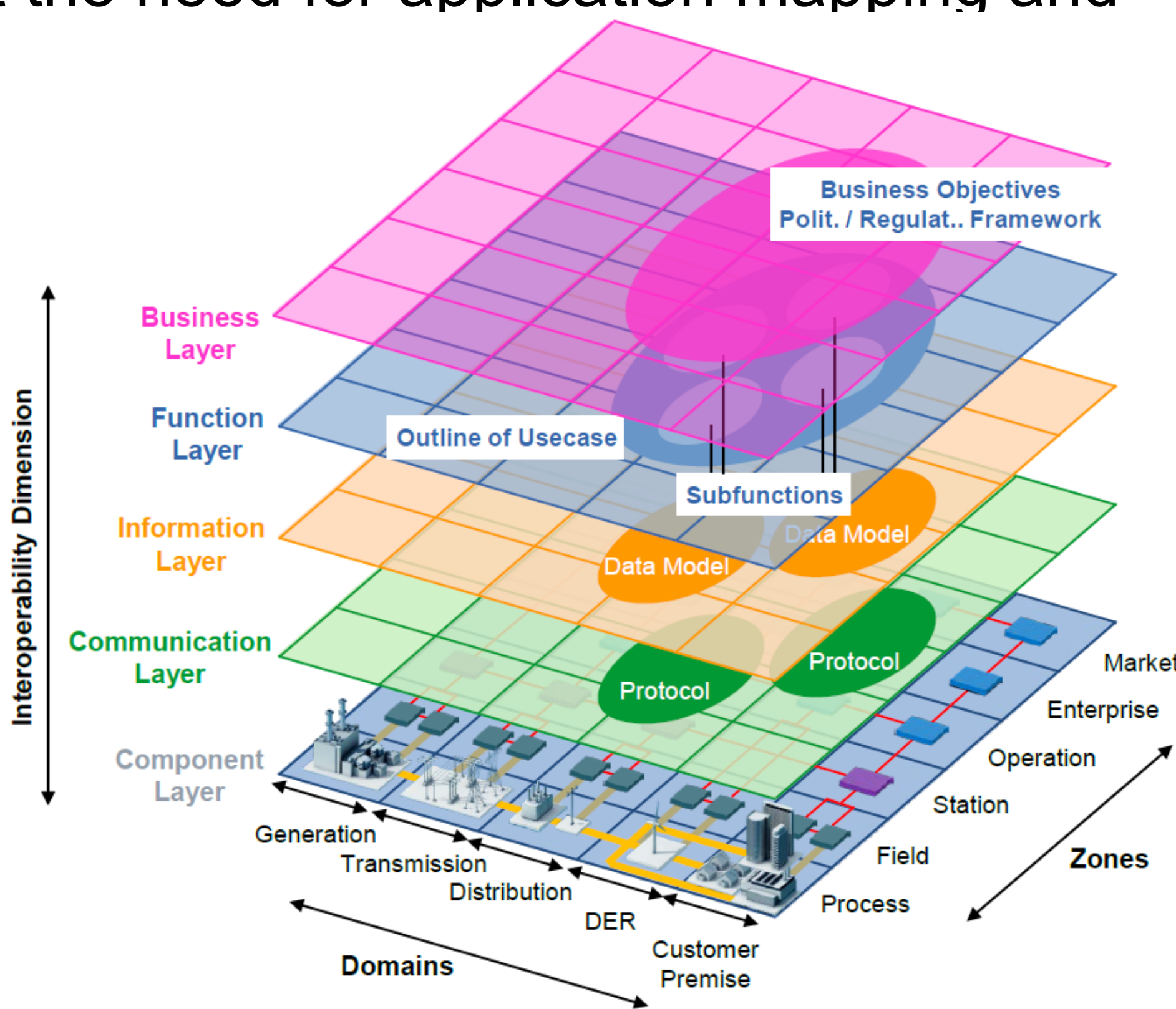
450

I. Abstract

The continuously changing and developing technology framework and IT infrastructure create novel approaches and possibilities all over the industry spectrum. Thus the energy and its IT supporting segment cannot be an exception either. Nowadays it is hard to imagine any kind of work process on energy generation, transmission, distribution or consumption filed without IT application solutions. To keep this portfolio transparent and effective a methodology is needed for developments and strategy planning. In this paper enterprise application landscape planning experiences and recommendations are introduced. The approach effectively combines the TOGAF (The Open Group Architecture Framework) and Agile methods. At the end of a five years 'journey', the evolution can be followed from a target architecture planning approach to a novel solution which is in use right now. To conclude this work a group of techniques and methods are suggested for the application of these solutions for a sustainable and forward-looking application portfolio at a reasonable cost level.

II. Problem definition

In most of the studies, expert interviews were conducted to investigate various cases of enterprise architecture management use. Many articles highlight the need for application mapping and the fact that this is an existing process for most companies. Consequently, there is a unified register of applications and some level of visualization of them for almost all large companies. The question is whether the list and the visualization are supported by different or the same enterprise architecture management tools.



III. Methodology

Togaf

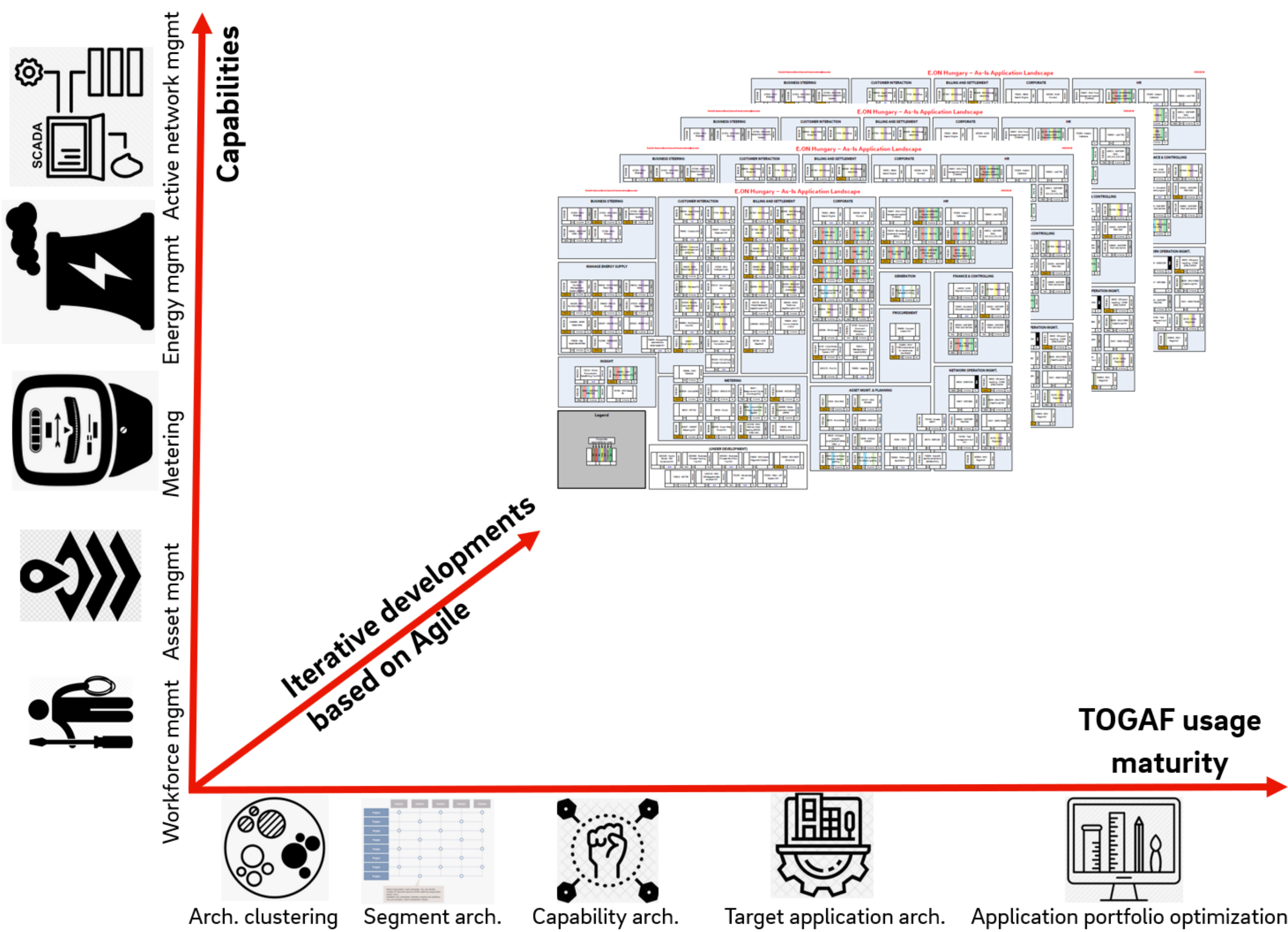
Creating an application map or application landscape can appear in several process steps. The first requirement is to create the as-is version, which is a current 'map' of the company's IT applications. Afterwards, the development of the to-be version is typically based on the availability and usability of the as-is map, and on the other hand, also on the business and IT strategic decisions, i.e. requirements. To determine what goals we want to reach, we need to know our business and IT directions – the application map is only a supporting tool for these. TOGAF – which is the abbreviation of The Open Group Architecture Framework – is probably the most popular EA (Enterprise Architecture) framework among companies in the last decade. It is a large collection of best practices in enterprise architecture, thus it is formulated by the know-how of several corporations, within the energy sector as well. There are various EA analysis techniques, as defined by TOGAF.

Agile

Business Agility is one of the most fashionable operational and cultural directions these days. Basically, it is applied to promote collaboration in segmented, sometimes "silo"-like organizations, to structure delivery by breaking down complex, long term plans into tangible, well definable increments, which requires and promotes more detailed short term requirement definition. As many energy and utility firms have a long lasting tradition of 5–10-year-long network development concepts and 3-year-long projects, the adaptation of Business Agility is picking up relatively slowly in this industry. However, if the subject activity is well chosen, the above mentioned elements can bring attractive results both in cultural and investment regards. Further on, Agile development portfolio-management solutions aid the improvement of transparency, as they require single-file prioritization of development initiatives, ensuring that a comprehensive resource, architecture and time planning takes place, involving all stakeholders.

III. Results

In the present 5-year-long project many steps were made to achieve the present maturity of our architectural operation. The main steps are introduced below and the results are shown, from basic application repository solution, through a complex screening project, via a system frontend middleware and backend investigation to capability mapping. This was the point where the IT approach and business goals could strengthen each other and commonly draw the to-be vision as a platform operation.



In this study, two different approaches were worked out to identify the application landscape and analyse the action points were developments are needed for a large company in the energy sector. The TOGAF based approach was the key for the application catalogue preparation. The capability based approach covered all the supported and to-be-supported business activities. The two approaches must provide the same application landscape just from another viewpoint.

With an appropriate IT architecture, the strategic targets and planning are more tangible and possible to handle. The development method assures keeping the achieved architecture: Agile based IT-portfolio handling can assure that only architecture compliant solutions are developed.

As the next step, a technology guideline is in preparation on the most important fields (application development, hosting, dev-ops etc.) to give appropriate technical support for all the stakeholders who have an impact on the architecture evolution and to create a baseline for the architect community to establish a governance body.

Main references

- [1] Sergej Bondara, John C. Hsub, Alain Pfougaa, Josip Stjepandića, "Agile Digitale Transformation of Enterprise Architecture Models in Engineering Collaboration", 27th International Conference on Flexible Automation and Intelligent Manufacturing, FAIM2017, (2017)
- [2] Sergej Bondar, John C. Hsu, Alain Pfouga, Josip Stjepandic, "Agile Digital Transformation of System-of-Systems Architecture Models Using Zachman Framework", Journal of Industrial Information Integration (2017)
- [3] Mathias Uslar, Sebastian Rohjans, Christian Neureiter, Filip Prösl, Andrén, Jorge Velasquez, Cornelius Steinbrink, Venizelos Efthymiou, Gianluigi Migliavacca, Seppo Horsmanheimo, Helfried Brunner, Thomas I. Strasser, "Applying the Smart Grid Architecture Model for Designing and Validating System-of-Systems in the Power and Energy Domain: A European Perspective", Energies (2019)
- [4] Nowakowski, E., "Enterprise Architecture Planning: Analyses of Requirements from Practice and Research", Proceedings of the 50th Hawaii International Conference on System Sciences (2017)

Acknowledgement

The authors would like to thank Brigitta Popovicsné Koncsos, Managing Director of EDTHU, for supporting the strategy and architecture team. Without continuous follow-up, ideas, and constructive questions, this process would not have kept where we are today.